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# THE INDUSTRIAL ARTS INDEX

FIRST ANNUAL CUMULATION

SUBJECT INDEX TO A SELECTED LIST OF  
ENGINEERING AND TRADE PERIODICALS  
FOR 1913

EDITED BY  
MARION E. POTTER AND LOUISE D. TEICH

THE H. W. WILSON COMPANY  
WHITE PLAINS, N. Y. and NEW YORK CITY  
1914

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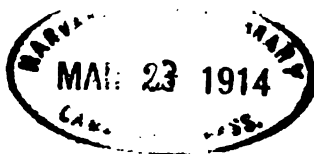
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# Industrial Arts Index

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**THE H. W. WILSON COMPANY**

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Full information in regard to subscription price will be supplied on request.

With this issue the *Industrial Arts Index* completes its first volume. The removal of the publishers from Minneapolis to White Plains prevented the publication of a number in December. The present issue however, is a complete index for 1913 of the magazines listed on the following page. Numbers one and two of volume two will be published as a double number in April and the publishers hope to resume thereafter the regular schedule.

The four numbers thus far published have been in the nature of an experiment. The list of periodicals is still far from complete, and the method of indexing will no doubt need modification as the work is enlarged. Suggestions will be welcome both as to the list of magazines and the improvement of the indexing. Ice and Refrigeration, The Proceedings of the American Society of Civil Engineers', the Electrical Journal, and American Machinist do not appear on the list as the publishers have not yet sent us copies for indexing. The Textile World Record, General Electrical Review, Journal of American Institute of Architects, American Gas Light Journal have been chosen as the next additions, while the indexing of Horseless Age and Electrical Review and Western Electrician which was necessarily omitted from this volume, will be carried back to the beginning of 1913.

One of the difficulties of indexing engineering magazines is to indicate the fact that certain articles appear in more or less similar form in several different periodicals. As the titles of these articles usually vary, it takes a good deal of time to establish their identity or partial identity. This happens frequently in the case of reports or abstracts of papers presented before engineering or trade societies. The original paper may be published in one magazine, a portion of it in another, reasonably full abstracts in a third, and perhaps a brief summary in a fourth. An expression of opinion is very much desired as to the importance of indicating the relationship of these articles to one another. Should they be combined in one entry under one title,

with some abbreviation or symbol to show the relationship e. g. "Same cond." or "excerpts," or might they be entered separately each under its own title and the time thus saved be spent more profitably in improvements in other directions?

Miss Louise Teich has edited copy and read the final proof of this index. Credit is due also to Mrs. Nellie Shimer for valuable assistance.

The American Institute of Mining Engineers publishes an index to volumes 36 to 40 of its Transactions, covering the years 1905 to 1909. This index supplements the "General Alphabetical and Analytical Index" of volumes 1 to 35. A new arrangement of material under group headings is introduced.

The American Society for Testing Materials has published an index to the first twelve volumes of the Proceedings of the society. Volume 1 contains the index to the twenty-eight bulletins that were issued at irregular intervals from 1898 to 1902. Volume 2 contains the index to the annual volumes which have been issued since that date, including the volume for 1913. A table of contents giving the contents for each individual volume follows the index proper.

The "Index to Transactions of the American Institute of Electrical Engineers" in two volumes has been issued by that society. "This index consists of two separate parts, each intended for a distinct purpose. First. There is an index of papers in which they are classified in natural groups and arranged chronologically in each group. Second. There is an index to specific data and information arranged alphabetically. The index of papers is intended for searchers desiring to locate papers on a given subject, and to aid in this search the papers have been characterized. These characterizations are not intended to be abstracts of the papers, but rather to give the scope and nature of their contents. . . . The index to specific data and information is intended for searchers desiring to make a complete study of the subject as presented in the Transactions. There is a great mass of valuable information hidden in discussions which has no very direct connection with the subject of the paper. This data can be found only by reference to such a topical index." (Introduction) Volume 1 covers the period from 1884 to 1900 inclusive; volume 2, from 1901 to 1910 inclusive.

# List of Periodicals Indexed

- Am Eng**—American Engineer. See Ry Age (Mech ed).
- Am Ind**—American Industries. \$1; single numbers 10c. National Manufacturers Co., 30 Church St, New York.
- Am Inst E E Pro**—American Institute of Electrical Engineers. Proceedings. \$10; single numbers \$1. F. L. Hutchinson, sec., 33 W. 39th St, New York.
- Am Inst Min E Bul**—American Institute of Mining Engineers. Bulletin. subs. \$10; to members, public libraries, and educational institutions, \$5. Joseph Struthers, sec., 29 W 39th St, New York.
- Am Mach**—American Machinist. \$4; single numbers 15c. Hill Pub. Co., 505 Pearl St, New York.
- Am Soc M E J**—Journal of the American Society of Mechanical Engineers. \$3; single numbers 35c. American Society of Mechanical Engineers, 29 W 39th St., N. Y.
- Arch & Bldg**—Architecture and Building. \$2; single numbers 20c. William T. Comstock Co., 23 Warren St, New York.
- Arch Rec**—Architectural Record. \$3; single numbers 35c. Architectural Record Co., 119 W. 40th St, New York.
- Automobile**—Automobile. \$3; single numbers 20c. Class Journal Co., 231 W 39th St, New York.
- Brick**—Brickbuilder. \$5. Rogers & Manson, 85 1/2 Water St, Boston.
- Colliery**—Colliery Engineer. \$2; single numbers 25c. International Textbook Co., Scranton, Pa. Formerly Mines and Minerals.
- Concrete Cem**—Concrete-Cement Age. \$1.50; single numbers 15c. Concrete-Cement Age Pub. Co., 97 West Fort St, Detroit, Mich.
- Dom Eng**—Domestic Engineering. \$2; single numbers 10c. Domestic Engineering Co., 445-447 Plymouth Court, Chicago.
- Elec Ry J**—Electric Railway Journal. \$3; single numbers 10c. McGraw Pub. Co., 239 W 39th St, New York.
- Elec R & W Elec'n**—Electrical Review and Western Electrician. \$3; single numbers 10c. Electrical Review Pub. Co., 608 S Dearborn St, Chicago.
- Elec W**—Electrical World. \$3; single numbers 10c. McGraw Pub. Co., 239 W 39th St, New York.
- Eng & Min J**—Engineering and Mining Journal. \$5; single numbers 15c. Hill Pub. Co., 505 Pearl St, New York.
- Eng M**—Engineering Magazine. \$3; single numbers 25c. Engineering Magazine Co., 140 Nassau St., New York.
- Eng N**—Engineering News. \$5; single numbers 15c. Hill Pub. Co., 505 Pearl St, New York.
- Eng Rec**—Engineering Record. \$3; single numbers 10c. McGraw Pub. Co., 239 W 39th St, New York.
- Foundry**—Foundry. \$1; single numbers 15c. The Foundry, Cleveland, O.
- Heat & Ven**—Heating and Ventilating Magazine. \$1; single numbers 10c. Heating & Ventilating Magazine Co., 1123 Broadway, New York.
- Horseless Age**—Horseless Age. \$2. Horseless Age Co., 250 W 54th St., N. Y.
- Ill U Eng Exp Sta Bul**—Illinois University Engineering Experiment Station. Bulletin. Univ. of Ill., Urbana.
- Ind Eng**—Industrial Engineering and Engineering Digest. \$2; single numbers 20c. Technical Literature Co., 120 W. 32d St., New York.
- Inland Ptr**—Inland Printer. \$3; single numbers 30c. Inland Printer Co., 624 Sherman St, Chicago.
- Int Marine Eng**—International Marine Engineering. \$2. Aldrich Pub. Co., 17 Battery Place, New York.
- Iron Age**—Iron Age. \$5; single numbers 20c. David Williams Co., 239 W 39th St, New York.
- Iron Tr R**—Iron Trade Review. \$4; single numbers 15c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- J Account**—Journal of Accountancy. \$3; single numbers 30c. Ronald Press Co., Coopers-town, N. Y.
- J Fr Inst**—Journal of the Franklin Institute. \$5; single numbers 50c. Franklin Institute, Philadelphia.
- J Ind & Eng Chem**—Journal of Industrial and Engineering Chemistry. \$6. American Chemical Society, Easton, Pa.
- Locomotive**—Locomotive. 50c; single numbers gratis; recent bound volumes \$1. Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Mach**—Machinery. Engineering edition \$2; coated pa. \$2.50. Industrial Press, 140 Lafayette St, New York.
- Met & Chem Eng**—Metallurgical and Chemical Engineering. \$2; single numbers 25c. McGraw Pub. Co., 239 W 39th St, New York.
- Metal Ind n s**—Metal Industry new series. \$1; single numbers 10c. Metal Industry, 99 John St, New York.
- Mines & Min**—Mines and Minerals. See Colliery.
- Munic Eng**—Municipal Engineering. \$2; single numbers 25c. Engineering Pub. Co., Indianapolis, Ind.
- Power**—Power. \$2; single numbers 5c. Hill Pub. Co., 505 Pearl St, New York.
- Ry Age**—Railway Age Gazette. \$5; single numbers 15c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.
- Ry Age (Mech ed)**—Railway Age Gazette, mechanical edition including the American Engineer. \$2; single numbers 20c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.
- Ry & Eng R**—Railway and Engineering Review. \$4; single numbers 15c. Railway Review, 1407 Ellsworth Bldg, Chicago.  
Continued as Railway Review.
- Sci Am**—Scientific American. \$3; single numbers 10c. Munn & Co., 361 Broadway, New York.
- Sci Am S**—Scientific American Supplement. \$5; single numbers 10c. Munn & Co., 361 Broadway, New York.
- Stevens Ind**—Stevens Indicator. \$1.50; single numbers 50c. Stevens Institute of Technology, Hoboken, N. J.
- U S Agric Bul**—United States. Dept. of Agriculture. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
- U S Bur Chem Bul**—United States. Bureau of Chemistry. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.  
Included, after bulletin 166, in the Bulletins of the United States. Dept. of Agriculture.
- U S Bur Mines Bul**—United States. Bureau of Mines. Bulletin. Distributed free of charge. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Stand Bul**—Bulletin of the United States Bureau of Standards. quarterly, \$1. Superintendent of Documents, Union Bldg, Washington, D. C.
- U S Forest Serv Bul**—United States. Forest Service. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.  
Included, after bulletin 127, in the Bulletins of the United States. Dept. of Agriculture.
- U S Pub Road Bul**—United States. Office of Public Roads. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.  
Included, after bulletin 48, in the Bulletins of the United States. Dept. of Agriculture.

\* A few numbers only are indexed

† Periodicals elected but not yet indexed

# Industrial Arts Index

## A Cumulative Index to Engineering and Trade Periodicals

January—December, 1913

### Ability tests

Are men better typists than women? scientific tests made by J. M. Lahy. J. Boyer. *Il Sci Am* 109:316 O 25 '13  
Mental tests to grade pupils at school. *Sci Am S* 75:87 F 8 '13  
Psychological tests of motormen. *Elec Ry J* 42:66-7 JI 12 '13  
Scientific selection of workmen. *Eng Rec* 67:171 F 15 '13

*See also* Efficiency, Industrial

### Abrasives

Carborundum and alundum: a comparison with emery. S. A. Cocheil. *Metal Ind n s* 11:249-50 Je '13

*See also* Emery wheels; Grinding and polishing

### Absecon Inlet

Channel- and beach-maintenance problem at Atlantic City. R. R. Raymond. *map Eng N* 70:150-4 JI 24 '13  
Proposed improvement of an ocean bar at Atlantic City, N. J. L. M. Haupt. *Eng N* 70: 523-4 S 11 '13

### Absorption of light

Absorption of light in space. E. S. King. *Il Sci Am S* 75:171 Mr 15 '13

### Absorption spectra. *See* Spectra—Absorption spectra

### Absorption system. *See* Refrigeration and refrigerating machinery

### Absorption towers

Absorption and reaction towers for chemical factories. *diags Met & Chem Eng* 11:359-61 Je '13

### Abu, Mount

Temples of Dilwara on Mount Abu. T. G. Dalal. *Il Sci Am S* 76:200-1 S 27 '13

### Abutments. *See* Bridges—Abutments

### Acacias

Economic study of acacias. C. H. Shinn. *Il U S Agric Bul* 9:1-38 '13

### Academic efficiency. W: Kent. Stevens *Ind* 30: 20-26 Ja '13

### Accelerometer

Detecting resistance—saving fuel. W. C. Marshall. *Il Automobile* 28:833-5, 888-90, 937-9, 978-9 Ap 17-Mr 8 '13  
Tester uses accelerometer on trucks. *Automobile* 29:200-3 JI 31 '13

### Accident law. *See* Negligence; Personal injuries; Workmen's compensation

### Accident prevention. *See* Safety devices and measures

### Accidents

Few miscellaneous accidents. *Sci Am S* 76: 407 D 27 '13

Prevention of elevator accidents. R. P. Bolton. *Ind Eng* 13:251-3 Je '13

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### Accidents, Industrial

Accident prevention. J. B. Douglas. *Il Sci Am S* 76:232-4 O 11 '13  
Accident prevention at Rochester, N. Y. *Il Am Ind* 13:24-7 Ap '13  
Accident prevention in construction work. *Sci Am S* 75:362-3 Je 7 '13

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Accidents in iron and steel mills: comparison for the United States and Germany. *Iron Age* 92:425 Ag 21 '13

Accidents on Catskill aqueduct. *Eng Rec* 67: 320 Mr 22 '13

Conservation of the worker. A. Cotter. *Il Eng M* 45:489-505 JI '13

Industrial accident costs in Massachusetts. *Eng Rec* 67:338-9 Mr 29 '13

Lessons of a power plant accident. H. S. Knowlton. *Power* 37:49-50 Ja 14 '13

Luck, law and industrial accidents discussed. W: H. Doolittle. *Iron Tr R* 52:921-2 Ap 17 '13; Same cond. *Iron Age* 91:945-6 Ap 17 '13

Metal-mining accidents; Catskill aqueduct accidents. *Eng & Min J* 95:1009-10 My 17 '13

Museums of safety and their activities: a brief history of movement for prevention of industrial accidents. M. S. Hutton. *Mach* 19:31-3 S '12

Ordinary precautions in construction work. *Eng Rec* 67:433-4 Ap 19 '13

Practical work in industrial advancement. *Am Ind* 13:12-5 JI '13

Prevention of accidents in central stations. *Il Elec W* 61:986-9 My 10 '13

Prevention of accidents in factories. *Il Sci Am S* 76:212-4 O 4 '13

Prevention of disease versus cost of living. T: F. Harrington. *Sci Am S* 75:402-3 Je 28 '13

Recording memoranda on accident prevention. T: D. West. *Am Ind* 14:19-20 D '13

Relative vocational hazards. H. Davis. *Colliery* 33:485-6 Ap '13

Safety engineering should form part of every engineering course. G. Gilmour. *Il Sci Am S* 76:36-9 JI 19 '13

Sanitation and safety in heavy-chemical production. F. D. Patterson. *Il Am Ind* 13:28-31 Mr '13

Taking chances on a sewer trench. *Il Munio Eng* 44:184-5 Mr '13

Three years of accident prevention: results of Eastman kodak co. *Il Iron Age* 91:1058-61 My 1 '13

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### Account analysis

Account analysis in commercial banks. H. C. Thompson. *J Account* 16:210-29 S '13

### Accountants

Accounting charges. F: G. Colley. *J Account* 15:245-7 Ap '13

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Federal relations: advancement and regulations of the profession. J: A. Cooper. *J Account* 15:1-9 Ja '13

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 Pennsylvania C. P. A. examinations of November, 1912. J Account 15:198-230, 273-301, 370-6 Mr-May '13  
 Pennsylvania state board of examiners of public accountants. J Account 16:151-8 Ag '13

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 Delaware, North Carolina, North Dakota, Wisconsin C. P. A. laws. J Account 16:65-77 Jl '13  
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 Cotton mill accounts. J. Hunter. J Account 16:110-9 Ag '13  
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 Investigating an industry: accounting and sales departments. W. Kent. Ind Eng 13:208-11 My '13  
 Language of accounting. C. M. VanCleve. J Account 16:424-31 D '13  
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 Measuring efficiency on a profit basis. E. B. Passano. Iron Tr R 52:682-4 Mr 20 '13  
 Practical principles of rational management. A. H. Church. Eng M 45:166-73 My '13  
 Some essentials of public service accounting. A. F. Elkins. Elec Ry J 42:1276 D 20 '13  
 Supply jobbers' convention considers accounting. Elec W 62:1037-8 N 22 '13  
 Trade union accounting. A. E. Carpenter. J Account 16:440-2 D '13  
 Uniform accounting systems. E. F. Gay. J Account 16:268-79 O '13

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Ability of the acetylene flame. E. M. Chance. Colliery 34:239-41 N '13  
 Acetylene lamps in coal mines. Colliery 34:49-51 Ag '13  
 Acetylene lighting system defended. R. H. Coombs. Automobile 29:514-5 S 13 '13

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Acetylene-electric flame. C. F. Lorenz. II Elec W 61:511-5 Mr 8 '13

Acetylene for lighthouses, buoys, etc.

Marine lighting equipment of the Panama canal. J. Pattison. diags Eng N 69:1057-9 My 22 '13

Acid-proofing the floors of battery rooms. plan Met & Chem Eng 11:56 Ja '13

**Acid waste**

Disposal of acid waste in schools. J. Graham. diags Dom Eng 63:212-4 My 24 '13

**Acidimetry**

Benzolic acid as an acidimetric standard. G. W. Morey. U S Bur Stand Bul 8:643-50 Mr 1 '13

**Acids**

Manufacture of chemically pure acids; problems encountered. J. T. Baker. II Sci Am S 75:94-6 F 8 '13

See also Acidimetry; also names of acids, as Amic acids; Hydrochloric acid; Nitric acid; Sulphuric acid

**Acorns**

Acorns and their uses. II Sci Am 108:248 Mr 15 '13

**Acoustics, Architectural**

Air currents and their relation to the acoustical properties of auditoriums. F. R. Watson. Eng Rec 67:265-8 Mr 8 '13

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Adding machines. See Calculating machines

**Adding typewriters**

Frame work on an adding typewriter. R. Mawson. II Am Mach 38:847-50 My 22 '13

**Adobe bricks**

Strength of adobe brick. Eng & Min J 96:1074 D 6 '13

**Advertising**

Advertising for the printer. C. W. Hoyt. Inland Ptr 50:525-7 Ja '13

Advertising in printing trade. M. Gross. Inland Ptr 50:524-5 Ja '13

Advertising printing—a profitable field. E. R. Roeder. Inland Ptr 52:381-2 D '13

Cost of advertising in country daily and weekly newspapers. E. K. Whiting. Inland Ptr 51:718-20 Ag '13

Higher advertising rates for country papers. Inland Ptr 51:557-9 Jl '13

How shall we make advertising effective? J. K. Allen. Dom Eng 64:341-2 S 20 '13

It pays to advertise. A. G. Brenton. Inland Ptr 50:843-5 Mr '13

Newspaper work. O. F. Byxbee. See monthly numbers of the Inland printer

Printers' advertising. W. H. Wright. Inland Ptr 51:838-40 S '13

Publicity for plumbers. Dom Eng 62:311-2 Mr 15 '13

Reaching the public through printing. W. T. O'Donnell. Inland Ptr 51:406-8 Je '13

Securing business by a house organ. C. W. Hoyt. Inland Ptr 51:682-4 Ag '13



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Sliding scale of advertising costs. J. C. Morrison. Inland Ptr 52:433-6 D '13

Study course in advertising. Inland Ptr 50:694-5 F '13

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Job with a curse. W. A. Olsen. Inland Ptr 51:685-7 Ar '13

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Views. Arch & Bldg 45:25-9 Ja '13

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Report of the Aera advisory committee. Elec Ry J 42:827-8 O 16 '13

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Aviation to-day: Importance of a national aerodynamic laboratory. W. I. Chambers. Il Sci Am S 75:124-6 F 22 '13

Langley aerodynamical laboratory. C. H. Butman. Sci Am 108:538 Je 14 '13

National aerodynamic laboratory. Sci Am 108:26 Ja 11 '13

Need for an aerodynamic laboratory in the United States. W. I. Chambers. Eng M 44:764-7 F '13

**Aerodynamics**

Comparative efficiency of Eiffel surfaces: studies in aeroplane design. R. D. Andrews. Sci Am S 75:307 My 17 '13

Laws of similitude and their application in aeroplane design. L. Balfstow. Il Sci Am S 76:109-10 Ag 16 '13

Reflections on aerial flight: fallacy of pendulum stabilizers. H. R. A. Mallock. diag Sci Am S 76:398-400 D 20 '13

Stream lines around obstacles to air currents. Il Sci Am S 75:268-9 Ap 26 '13

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Aeronautic show at Olympia. S. Y. Beach. Il Sci Am S 75:21-2 Ja 11 '13

Latest motors at the Paris aero show. Il Sci Am S 75:196-7 Mr 29 '13

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Aeronautics and aviation in 1912. Sci Am 108:30 Ja 11 '13

Aeronautics in Germany. Sci Am S 75:322-3 My 24 '13

Airhole of landing. E. Heinkel. Am Soc M E J 35:690-1 Ap '13

Airman and the weather: aeronautic meteorology. C. F. Talman. Il Sci Am 109:94 Ag 2 '13

Direction of aerial highways. Sci Am 109:298 O 18 '13

Germany's aeronautical weather bureau. Sci Am 108:262 Mr 22 '13

Measurement of the true static pressure in a moving fluid—application to an aeroplane barograph. A. F. Zahm. J Fr Inst 175:503-9 My '13

Progress in air navigation. J. D. Holmes. Sci Am 109:211 S 13 '13

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 Design of concrete abutments without wing walls for deck girders. C. M. Luther. plans Eng N 70:816-7 O 23 '13  
 Novel design for a high abutment. E. F. Ackerman. II diag Ry Age 54:759-61 Mr 28 '13

**Cost**

Collection and use of construction cost data. Eng N 70:1305-7 D 25 '13  
 Piers for a North river bridge at New York city would effect no saving in cost over a single span. G. Lindenthal. Eng N 69:126 Ja 18 '13  
 Weight and cost of bridges: comparison of different types in Buffalo. diags Eng Rec 68:640-1 D 6 '13

**Damages from floods, etc.**

Damage to bridges at Lafayette, Ind. R. L. Sackett. II Eng N 69:837-8 Ap 24 '13  
 Damage to structures in Indianapolis flood. D. V. Moore. II map Eng N 69:870-5 Ap 24 '13  
 Destruction of bridges in Indiana flood. C. Brossmann. II Eng Rec 67:873-4 Ap 5 '13  
 Genesee river bridge wrecked by ice. Eng Rec 67:92 Ja 25 '13  
 Results of recent flood at Columbus; damages to bridges and levees and plans for improving river channels. J. J. Morgan. II map Eng Rec 67:444-5 Ap 19 '13  
 Y bridge at Zanesville, O. withstands flood. R. H. Lewis. II Concrete Cem 2:292-3 Je '13

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Protective coatings for railway bridge floors. A. W. Carpenter. Eng N 69:60-1 Ja 9 '13  
 Viaduct floor of hollow concrete tile. II Eng Rec 68:647-8 D 6 '13

**Foundations and piers**

Concrete pile specifications for the Point bridge at Pittsburgh. Eng Rec 68:581 N 22 '13  
 Concrete specifications for bridge substructure. Eng Rec 68:305-6 S 13 '13  
 Construction features of the substructure of the Cumberland river bridge, L. & N. Ry. H. M. Jones. II map Eng N 69:1050-2 My 22 '13  
 Construction of new Quebec bridge piers. H. P. Borden. II Ry Age 55:365-9 Ag 29 '13  
 Deep-water piers for Passaic and Hackensack river bridges. II Eng Rec 68:698-9 D 20 '13  
 Foundation work on the Pitt river bridge: Canadian Pacific Ry. II plan Eng Rec 67:717-8 Je 28 '13  
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 Removing the masonry and submerged grillage of a bridge pier, Cleveland, O. II Eng Rec 67:618-9 My 31 '13  
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 Safeguarding displaced viaduct piers at Cleveland. II diags Eng Rec 68:661-3 D 13 '13  
 Substructure for East river bridge division, New York connecting railway. II diag Eng Rec 68:328-30 S 20 '13

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- Equivalent uniform loads on bridges for different types of engine. Eng N 70:824-5 O 23 '13  
 Experiments on moving loads on highway bridges. Eng Rec 68:165-6 Ag 9 '13  
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 Moving loads on steel bridges: consideration of stresses produced by train crossing truss and girder spans. Eng Rec 68:663-4 D 13 '13

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- Bridge renewal on the Boston & Albany railroad. Il Ry & Eng R 63:1058-9 N 15 '13  
 Bridge renewal over Cedar river near Moscow, Iowa. Il Ry Age 54:896-7 Ap 18 '13  
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 Kaw river bridge reconstruction. Il plan Eng Rec 67:434-6 Ap 19 '13  
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 Novel method of removing an old bridge. Eng N 69:846 Ap 24 '13  
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 Pont Notre-Dame reconstruction, Paris; arch replacement under traffic. Il plans Eng N 70:1211-4 D 13 '13  
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 Reconstruction of Kaw river bridge. C. E. Smith. Il plans Ry Age 55:45-9 J1 11 '13  
 Reconstruction of the old chain bridge at Newburyport, Mass. E. C. Sherman. Il plans Eng N 70:585-7 S 25 '13  
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 Safeguarding displaced viaduct piers: stopping dangerous settlement and sliding by drainage system; underpinning and rebuilding foundations at Cleveland. Il diags Eng Rec 68:661-3 D 13 '13  
 Schuylkill river bridge improvements: widening a masonry arch structure on Pennsylvania main line in Philadelphia. Il diag Ry Age 55:1173-6 D 19 '13  
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- Repairs**  
 Bridge maintenance. Ry Age 54:1560-1 Je 20 '13  
 Novel bridge repair job at Uhrichsville, Ohio. E. Stingel. Il plan Eng Rec 68:53 J1 12 '13  
 Reinforcing a scoured pier foundation at Newcomerstown, O. E. Stingel. diag Eng Rec 68:182 Ag 16 '13  
 Reinforcing an old railway viaduct. W. T. Curtis. plan Eng N 69:1326-7 Je 26 '13

- Replacing lower chord of a drawspan while in service. Il Eng Rec 67:571 My 24 '13  
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- Allentown, Pa.—reinforced concrete viaduct for heavy service. B. H. Davis. Il plans Concrete Cem 2:161-8 Ap '13  
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 Atherton avenue highway bridge, Pittsburgh. Il plans Eng Rec 67:540-3 My 17 '13  
 Broadway bridge across Oswego river and the New York barge canal at Fulton, N. Y. Il plan Eng Rec 67:88-90 Ja 25 '13  
 Capitol avenue bridge, Indianapolis, Ind. L. V. Sheridan. Munic Eng 45:268-9 S '13  
 Carondelet park bridge, St. Louis, Mo. C. W. Martin. Il plans Eng N 70:646-50 O 2 '13  
 Catawba river bridge near Charlotte, North Carolina. Il Eng Rec 67:273 Mr 8 '13  
 Colorado street bridge over Arroyo Seco, Cal. E. E. Howard. Il plan Eng Rec 67:568-70 My 24 '13  
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 Concrete highway bridge at Ansonia, Connecticut. plans Eng Rec 67:219-20 F 22 '13  
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 Crooked river arch bridge, Oregon. Il diags Ry Age 54:394-6 F 28 '13  
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- Bascule highway bridge with overhead balance beams installed across a lock of the New York barge canal at Phoenix, N. Y. plan Eng Rec 67:177 F 15 '13  
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 Long-span double-deck bascule drawbridge over the Kaministiquia river for Canadian Pacific Ry. Il Eng N 70:308 Ag 14 '13  
 Motor-operated, three-leaf lift bridge. Il Iron Tr R 52:574 Mr 6 '13  
 New type of rail joint for bascule and vertical-lift bridges. Il diags Ry & Eng R 63:428-9 My 10 '13

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- Norwalk, Conn., Washington street bridge. plans Eng Rec 68:103-4 J1 26 '13  
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 Recent types of railway bascule bridges. H. G. Tyrrell. II Ry & Eng R 53:236-8 Mr 15 '13  
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 Road improvements of the Northern Pacific Ry., in Washington. II plan Ry & Eng R 53:259-60 Mr 22 '13  
 Rolling lift bridge 186 ft. long. So. Chicago. II Iron Age 91:299 Ja 30 '13  
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 Strauss single leaf bascule bridge at South Chicago. II diag Ry Age 54:605-6 Mr 19 '13

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- Adopted design of the Quebec bridge. R. Modjeski. diags Ry Age 55:559-63 S 26 '13  
 Comparative economy of cantilever and suspension bridges. Eng Rec 67:566-7 My 24 '13  
 Designing the Quebec bridge. R. Modjeski. II Eng M 46:417-20 D '13  
 High cantilever bridge in Mexico across Rio Chico. II diags Ry Age 55:1222-4 D 26 '13  
 Large cantilever bridge in China. II Eng N 69:61 Ja 9 '13  
 Latest bridge design for Sydney harbor, N. S. W.; the third largest span in the world. Eng N 70:220 J1 31 '13  
 Lifting the 130,000,000 pound Quebec bridge. H. F. Stratton. II Eng M 46:341-9 D '13  
 Memphis cantilever bridge. plans Eng N 70:930-2 N 6 '13  
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 Proportioning of long-span truss and cantilever bridges. J. Mayer. J Fr Inst 176:653-70 D '13 (to be cont)  
 Reinforcing an old cantilever bridge, Philadelphia, Penn. II plan Eng N 70:487-9 S 11 '13  
 Sewickley, Pa., cantilever bridge. II plans Eng N 69:393-9 F 27 '13  
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- Allentown, Pa.—reinforced concrete viaduct for heavy service. B. H. Davis. II plans Concrete Cem 2:161-8 Ap '13  
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- Cumberland, Ill. concrete bridge for a rural community. II plan Eng Rec 67:605 My 31 '13  
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 Prize design for James river bridge at Richmond. II Eng Rec 68:540 N 15 '13  
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- Failure of a steel-truss highway bridge in Colorado. W. H. Hubbard, Jr. II plan Eng N 69:532-3 Mr 13 '13
- Fort Dodge, Des Moines & Southern Ry. replaces high timber trestle with a steel viaduct. II plans Eng N 69:830-3 Ap 24 '13
- High steel viaduct in New Zealand. Eng Rec 68:277 S 6 '13
- Highway bridge specifications: requirements outlined by U. S. office of public roads. Eng Rec 68:230-2 Ag 30 '13
- Instruction for the inspection of the fabrication of steel bridges. Ry Age 54:581-3 Mr 19 '13; Same. Ry & Eng R 53:306 Mr 29 '13
- Iron and steel railway bridge in German Cameroon. A. Gradenwitz. II Eng Rec 68:134 Ag 2 '13
- Necessary precautions in the design and supervision of construction of low-truss steel highway bridges. G. M. Braune. Eng N 70:398-9 Ag 28 '13
- Nisqually river pipe-line bridge; design and erection at La Grande, Wash. II plan Eng Rec 67:327-8 Mr 22 '13
- Observations on bridge expansion. H. A. Loser. diag Eng N 70:1170-1 D 11 '13
- Reinforcing an old cantilever bridge, Philadelphia, Penn. II plan Eng N 70:487-9 S 11 '13
- Replacing high timber trestle near Boone, Iowa without interrupting traffic. II Eng Rec 67:187-8 F 15 '13
- Steel highway bridge specifications of the U. S. office of public roads. Eng Rec 68:265 S 6 '13
- Tacoma's steel lift bridge. J. O. Bashford. II Munic Eng 44:183 Mr '13
- Tests of two large nickel steel columns. H. W. Hodge. II plan Eng Rec 67:234-5 Mr 1 '13
- Typical specifications for the fabrication and erection of steel highway bridges. U S Pub Road Circ 100:1-25 '13
- Welded viaduct over the Roanoke river; 3,688 feet long. II plan Ry Age 54:998-1000 My 2 '13

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- Buffalo river lift bridges. E. Low. II diags map Ry Age 54:197-201 Ja 31 '13
- Cables of the Halsted street lift bridge at Chicago. Eng N 70:371-2 Ag 21 '13
- City waterway bridge, Tacoma, Washington. II Eng N 69:1010 My 15 '13
- Comparison of old and new designs for vertical-lift bridges. H. G. Tyrrell. Eng N 70:226-6 Jl 31 '13
- Direct-lift bridges. diags Eng Rec 68:403 O 11 '13
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- Erection of a cable lift bridge. W. J. Howard. II plan Eng N 70:500-1 S 11 '13
- New lift bridge of the Oregon-Washington R. R. & navigation co. at Portland. II Ry & Eng R 53:137-8 F 15 '13
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- Repairs to the So. Halsted st. lift bridge over the Chicago river. Eng N 69:920 My 1 '13
- Strauss direct lift bridge. diags Ry Age 54:553-5 Mr 18 '13
- Tacoma's steel lift bridge. J. O. Bashford. II Munic Eng 44:183 Mr '13
- Two motor-operated railroad lift bridges of the New York, New Haven & Hartford. II Ry Age 54:558-9 Mr 18 '13
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- Akron, Ohio—group of railroad plate-girder bridges. plans Eng Rec 67:355-6 Mr 29 '13
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- Doubling the load capacity of an old iron railroad viaduct. II diag Ry Age 54:1322-4 Je 13 '13
- Drawbridges over rivers having limited navigation. C. E. Smith. Eng N 69:151-2 Ja 23 '13
- Emergency bridge reconstruction: Baltimore & Ohio R. R. II Eng N 70:87 Jl 10 '13
- Equivalent uniform loads on bridges for different types of engine. Eng N 70:824-5 O 23 '13
- Erecting a plate-girder bridge with a gantry traveler. II Eng Rec 67:663 Je 14 '13
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- Iron and steel railway bridge in German Cameroon. A. Gradenwitz. *Il Eng Rec* 68: 124 Ag 2 '13
- Iron and steel structures. Ry Age 54:580-5 Mr 19 '13
- Kaw river bridge reconstruction. *Il plan Eng Rec* 67:434-6 Ap 19 '13
- Lachine bridge erection across the St. Lawrence river. *Il Eng Rec* 67:380-1 Ap 5 '13
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- Lift bridges over the Buffalo river. E. Low. *Il diag map Ry Age* 54:197-201 Ja 31 '13
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- Moving a bridge to permit the passage of a dredge. Eng Rec 67:220 F 22 '13
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- Moving the Union Pacific Kaw river bridge, Kansas City. *Il plans Eng Rec* 67:601-2 My 31 '13
- New bridge over the Mississippi at St. Paul, on the C. G. W. Ry. map plan Ry & Eng R 53:50-1 Ja 18 '13
- New lift bridge of the Oregon-Washington R. R. & navigation co. at Portland. *Il Ry & Eng R* 53:137-8 F 15 '13
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- Partial wreck of the Sangamon river bridge by a derailed train: Wabash R. R. Eng N 69:89 Ja 9 '13
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- Protective coatings for railway bridge floors. A. W. Carpenter. Eng N 69:60-1 Ja 9 '13
- Providing for navigation during erection of drawbridges. plan Eng N 69:153-5 Ja 23 '13
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- Railroad bridge design in Europe and America. Eng Rec 67:244-6 Mr 1 '13
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- Rebuilding of the burned Newark Bay trestle bridge, Pennsylvania R. R. *Il Ry & Eng R* 53:796 Ag 23 '13
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- Reconstruction of Kaw river bridge. C. E. Smith. *Il plans Ry Age* 55:45-9 Jl 11 '13
- Reinforcing the Manistee river viaduct. Eng Rec 68:68 Jl 19 '13
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**Distribution**

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**Management, Central station.** See Electric plants—Central stations—Management

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Measurement, Electric. See Electric measurement

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**Oregon electric railway**

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- Cast-weld joints and steel ties in Brooklyn. II Elec Ry J 42:920-4 O 25 '13
- Installations of twin-type steel ties. II Elec Ry J 42:1064 N 15 '13
- New railroad steel tie. diag. Iron Age 92:341 Ag 14 '13
- Steel channel tie for mine tracks. II Eng & Min J 36:1070-1 D 6 '13
- Steel ties on foreign railways. diag. Eng N 69:1307-8 Je 26 '13
- Railroad tracks.** See Railroads—Track
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- Railroads**
- Corporations and public. Eng M 45:89-90 Ap '13
- Plate-railways for road and steam traffic. G. N. Fell. Eng M 44:98-101 O '12

- Railway buying and general prosperity. E. B. Leigh. Ry Age 55:1161-2 D 19 '13; Same. Ry & Eng R 53:1174-5 D 20 '13
- Relation of railroads to the cost of distribution of food products. Ry & Eng R 53:760-1 Ag 9 '13
- State of mind regarding railroads. W. W. Finley. Ry & Eng R 53:211-2 Mr 8 '13
- Utica general improvement on the New York Central & Hudson river railroad. II plans Eng Rec 67:596-9 My 31 '13
- See also Air brakes; Bridges, Railroads; Buffers; Cable railroads; Carriers; Cars; Commerce; Earthwork; Electric railroads; Elevated railroads; Express service; Freight; Freight car service; Freight cars; Freight terminals; Interurban railroads; Locomotive shops; Locomotive terminals; Locomotives; Motor cars (railroad); Mountain railroads; Railroad engineering; Railroad law; Railroad ties; Rails; Railway mail service; Rapid transit; Roundhouses; Steam engines; Street railroads; Subways; Suspended railroads; Trackways; Train dispatching; Train resistance; Trestles; Tunnels and tunneling; also names of railroads, e. g. Union Pacific railroad

**Accidents**

- Accidents on private and state railways. Ry Age 54:1165-6 My 30 '13
- Accidents to passenger trains in Great Britain. Eng N 70:1132 D 4 '13
- Accidents viewed from a track maintenance standpoint. Ry & Eng R 53:948-9 O 11 '13
- Aftermath of the New Haven wreck. Ry & Eng R 53:874-5 S 13 '13
- American railway association and railway accidents. Ry Age 55:852-3 N 7 '13
- Analysis of the causes of railway accidents. Elec Ry J 41:551 Mr 22 '13
- Analysis of train-crew legislation. Ry Age 55:750-6 O 24 '13
- Annual report of the Interstate commerce commission. Ry & Eng R 53:7-9 Ja 4 '13
- Apportioning the responsibility for the New Haven wreck. Sci Am 109:254 O 4 '13
- Automobile fatalities and railway fatalities. Ry Age 55:741-2 O 24 '13
- Boiler inspector's first annual report. Ry & Eng R 53:12 Ja 4 '13
- Causes of injury in railway maintenance of way department. E. H. Barnhart. Ry Age 54:352 F 21 '13
- Collision in a London subway—failure of an automatic stop. H. R. Wilson. Ry & Eng R 53:159-60 F 22 '13
- Collision on the Pennsylvania railroad at Tyronne, Pa. II Ry & Eng R 53:886-8 S 20 '13
- Comparison of railway casualties in Great Britain and in the United States. Eng N 70:671-2 O 2 '13
- Conditions of competition for the E. H. Harriman memorial gold medal. Ry Age 55:708 O 17 '13
- Co-operation in railroad safety. B. L. Winchell. Am Ind 14:24-5 Ag '13
- Gothenburg collision report. Ry Age 54:1177 My 30 '13
- Governmental tolerance of trespassing on railway property. Ry & Eng R 53:958-9 O 11 '13
- How deadly is railway travel? Sci Am 109:230 S 20 '13
- Human factor in safe transportation. Sci Am 108:392 My 3 '13
- Human fallibility in railway operation. Elec Ry J 41:182-3 F 1 '13
- Indicting railway officials as a remedy for accidents. Eng N 69:124-5 Ja 16 '13
- Interstate commerce commission on the Stamford wreck. Sci Am 109:46 Jl 19 '13
- Interstate commerce commission quarterly accident bulletins. Ry Age 54:64-6, 1225-6; 55:759 Ja 10, Je 6, O 24 '13
- Interstate commerce commission report on the Stamford wreck on New York, New Haven and Hartford R. R. Ry & Eng R 53:689-90 Jl 19 '13
- Later aspects of the "safety first" movement. J. W. Coon; G. Bradshaw. Ry Age 54:387-9 F 28 '13

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- Latest and worst New Haven railway disaster. *Il Eng N 70:520-3 S 11 '13*  
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- See also Derailments; Railroads—Safety devices; Railroads—Signals; Street railroads—Accidents*

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- Cost and how to count it. E. R. Lewis. *Ry Age 54:1082 My 16 '13*  
 Depreciation of rolling stock equipment. F. Nay. *Ry & Eng R 53:1205 D 27 '13*  
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 Regulation of the stock of material; the relation of accounting to this problem. G. G. Yeomans. *Ry Age 54:802-3 Ap 4 '13*

Report of committee of Am. railway engineering assn. on records and accounts. *Ry Age 54:729-31 Mr 21 '13*  
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**Advertising**

Railroads and public appreciation. J. W. Booth. *Ry & Eng R 53:1150-1 D 13 '13*

**Auditing**

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**Automatic stop**

- American railway assn. report on automatic train stops. *Ry & Eng R 53:691 Jl 19 '13*  
 Attitude of railroads to the automatic stop. G. W. Ristine. *Sci Am 108:87 Ja 25 '13*  
 Automatic control of trains. B. C. Rowell. *Ry & Eng R 53:2-3 Ja 4 '13*  
 Automatic stop. B. C. Rowell. plan *Ry & Eng R 53:128-9 F 8 '13*  
 Automatic stops and audible signals. *Ry Age 54:834-5 Ap 11 '13*  
 Automatic train stop problem. A. H. Rudd. *Ry Age 54:1211-2 Je 6 '13*  
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 British opinion on railway automatic stops. H. R. Wilson. *Il plan Eng N 69:193-5 Ja 30 '13*  
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 Failure of a railway automatic stop in London. H. R. Wilson. *Eng N 69:479 Mr 6 '13*  
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 Ideal automatic train control. M. Weis. *Sci Am 108:156 F 15 '13*  
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- Bridges, stations and masonry work on the Montclair branch improvements. *Il Eng Rec 68:687-9 D 20 '13*  
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 Cotton storage shed of economical design. E. S. Pennebaker, jr. *Il Eng N 69:26-7 Ja 2 '13*  
 Fuel oil installations, Northern Pacific Ry. plans *Ry & Eng R 53:203-4 Mr 8 '13*  
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 Poured concrete buildings. D. L. & W. R. R., Nanticoke, Pa. *Il Ry & Eng R 53:455-6 My 17 '13*  
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**Cattle guards**

Cattle guards. Ry Age 55:788-90 O 24 '13

Conclusion of committee of Am. railway bridge and building assn. on cattle guards. Eng Rec 68:502-3 N 1 '13

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Successful claim agent. W. H. Hyland. Elec Ry J 41:420-1 Mr 8 '13

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Applications of concrete on the Long Island R. R. F. Auryansen. II Ry & Eng R 53:818-20 Ag 30 '13

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Bridges, viaducts and embankment work of the New York connecting railroad. II map plans Eng Rec 68:79-81 J1 19 '13

Buckhannon & Northern railroad. R. E. Kerr. II map Ry Age 55:617-8 O 3 '13

C. M. & St. P. improvement work: second track and grade revision between Aberdeen, S. D., and Montevideo, Minn. II diag map Ry Age 54:673-6 Mr 21 '13

Canton-Kowloon railway, China. Eng Rec 67:216-7 F 22 '13

Clinchfield extension: building a 35-mile line over the Cumberland range. II map Ry Age 55:861-8 N 7 '13

Company-force work on the Louisville & Nashville railroad. II Eng Rec 68:162-3 Ag 9 '13

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Concrete in railroad work. F. Auryansen. II Concrete Cem 2:37-40 Ja '13

Concreting train using a drag-line excavator. II Eng N 70:1031-2 N 20 '13

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Continuation of Louisville & Nashville improvements in eastern Kentucky. II plans Eng Rec 68:359-61 S 27 '13

D. L. & W. line north of Scranton, Pa. II diag Ry Age 54:941-2 Ap 25 '13

Delaware, Lackawanna and Western R. R. roadbed improvements. Ry & Eng R 53:392-3 Ap 26 '13

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Elkhorn railway extension. O. K. Morgan. II map plans Eng N 70:762-7 O 16 '13

Engineer's reminiscences of Mexican railway building. M. E. Schmidt. Eng M 45:688-94 Ag '13

Expensive 11-mile Magnolia cutoff to be built by Baltimore & Ohio R. R. Eng N 69:1232 Je 12 '13

Extra top width for new railroad embankments. Eng Rec 68:459 O 25 '13

Extra top width for new railroad embankments. T. B. Lee. Eng Rec 68:589-90 N 22 '13

Features of Louisville & Nashville work between Nashville and Birmingham. II diags Eng Rec 68:129-31 Ag 2 '13

Grade-crossing elimination at Second Avenue and Try Street, Pittsburgh. II plans Eng Rec 68:32-4 J1 12 '13

Grade elevation and six-tracking at Rahway, N. J. Pennsylvania R. R. J. Vall. II plans Eng N 70:1118-21 D 4 '13

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Hollow reinforced-concrete triangular boxes at three-level crossing of creek, railroad and avenue at Montclair, N. J. II plan Eng Rec 68:636-7 D 6 '13

Idaho Northern Ry. construction work. J. H. Smith. II plan Eng N 70:101-3 J1 17 '13

Kansas City terminal Ry. construction work. II Ry & Eng R 53:225-30 Mr 15 '13

Lewistown-Great Falls line of the C. M. & St. P. Ry. II plans Ry & Eng R 53:619-22, 685-9 Je 28, J1 19 '13

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New York Central improvements at Rome. E. Low. II plan diag Ry Age 55:282-5 Ag 15 '13

Nicholson relocation of the Lackawanna railroad. G. J. Ray. Eng Rec 67:461-2 Ap 26 '13; Same. Ry & Eng R 53:383 Ap 26 '13

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Track labor problem. F. L. Jandron. Ry & Eng R 53:369-71 Ap 19 '13

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Analysis of the estimated saving in a proposed change from 0.6 to a 0.3 per cent ruling grade on a typical 130-mile division. Eng Rec 68:375-6 O 4 '13  
Division of operating expenses. Ry & Eng R 53:345 Ap 12 '13  
Economics of railway location. Ry Age 54:610-7 Mr 20 '13  
Effect of a well organized store department on the operating cost of a railroad. N. M. Rice. Ry & Eng R 53:510-1 My 31 '13  
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Electrification of trunk line railroads: estimate of cost and of saving in operating expenses. C. P. Kahler. Ry Age 54:1550-4 Je 20 '13  
Expense of freight car and locomotive repairs, renewals and depreciation for year ending Je. 30, 1912, with cost per mile run for five years. Ry & Eng R 53:10-1 Ja 4 '13  
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Rome of Constantine reconstructed in a mod-  
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Permanent roof construction. II plan Concrete Cem 2:47-9 Ja '13

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**Russell, William Trent, 1849-**

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Rotary converter without shunt field. T. G. Thurston; S. A. Lewis. Power 37:416 Mr 25 '13

Sixty-cycle rotary converters. B. G. Lamme. Power 38:639-41 N 4 '13

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**Rotogravure. See Photogravure****Round table**

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Salvage and repair of the steamship Royal George. R. G. Skerrett. II Sci Am 109:64 Jl 26 '13

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Akron: where 20,000 tires are made daily. L. V. Spencer. II Automobile 28:1287-91 Je 26 '13

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Making of a pneumatic automobile tire. E. R. Hall. II Sci Am 108:32-3 Ja 11 '13

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Akron strike conditions becoming normal. Automobile 28:626 Mr 13 '13

**Rubber tires. See Tires****Rubbered fabrics**

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**Russell, E. W.**

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**Rust. See Corrosion and anti-corrosives****S****Sacramento, Cal.****Bridges**

Southern Pacific bridge at Sacramento: double track, double deck, swing span. II Ry Age 54:846-9 Ap 11 '13

**Sanitary affairs**

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- Safety committees.** See Electric railroads—Safety committees
- Safety devices and measures**  
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- Accident prevention at Stevens Institute of technology. A. S. Kinsey. *Il Am Mach* 38: 825-6 My 15 '13
- Accident talks to the children of Brooklyn. *Il Elec Ry J* 42:1222-6 D 13 '13
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- Salvage**  
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Keeping samples vs. shipping them. H. Kahler. Am Ind 13:27-9 F '13
- Sampling ores.** See Ore sampling
- Sanatoriums**  
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- San Bernardino, California**  
Streets  
Oiled macadam for residence streets. Eng Rec 67:576 My 24 '13
- Sand**  
Compact Peekskill sand and gravel washing plant. Il plan Eng N 69:514-5 Mr 13 '13  
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- Sand-cement.** See Cement
- Sand dunes**  
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- Prize design for Coney Island beach reclamation. plan *Eng N* 70:804-5 Ag 14 '13  
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- Concrete in the grazing country. *Il Concrete Cem 3:167-8 O '13*

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- Sleeping death: the scourge of Africa. D. A. Willey. *Il Sci Am S 76:104-6 Ag 16 '13*

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- Friedmann's new tuberculosis remedy. H. J. Archard. *Sci Am 108:210 Mr 1 '13*

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